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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER CUNNINGHAM, GREGORY F				
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/935,006

Applicant(s)

MATHUR ET AL.

Examiner

Greg Cunningham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-59 is/are pending in the application.
- 4a) Of the above claim(s) 8 and 37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-36 and 38-59 is/are rejected.
- 7) ☒ Claim(s) 3-7, 12-15, 32-36 and 41-44 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is responsive to communications of amendment received 2/11/2004.
2. The disposition of the claims is as follows: claims 1-59 are pending in the application. Claims 1, 30 and 59 are independent claims. Claims 8 and 37 have been cancelled.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 2/11/2004 has been considered, however as revealed from the copyright search records result the cited reference Adobe Illustrator 10: user guide has a copyright published date of November 5, 2001. Therefore it would not be considered prior art since the filing date of the instant invention is August 21, 2001.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claims 1 and 30 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: relationship between second set of "attribute values" and "second set of values" or "set of gradient attributes"

(Examiner's note: most likely meant to read as "... intermediary point, and the second set of values defining a transition between the at ...")

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

7. Claims 1, 2, 9-11, 16-20, 22-31, 38-40, 45-49, 51-58 and 59 are rejected under 35 U.S.C. 102(a) as being disclosed by Sakamoto, (US Patent 6,201,550 B1).

A. Claim 1, “A computer-implemented method for defining a color gradient to be applied to a region, the method comprising [abstract]:

defining a gradient starting point for a color gradient to be ... between colors in the region [col. 11, ln. 66 – col. 12, ln. 13 and col. 21, lns. 22-27];

defining a gradient ending point [col. 21, lns. 27-28];

defining at least one intermediary point between the gradient starting point and the gradient ending point [col. 12, lns. 14-23 and col. 21, lns. 34-50,];

defining a first and a second set of values ... in the set of gradient values [col. 21, lns. 22-50]” is disclosed [as detailed]. Wherein intersection of scanning line 133 and intermediate concentric circles of fig. 21 correspond to intermediary points; and first and second set of values correspond to values of n which indicate the concentric circles of color gradient changes (band like region).

B. Claim 2, “The method of claim 1, further comprising: rendering the ... for the set of gradient attributes” is disclosed supra for claim 1. (As shown and rendered in Fig. 21)

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C. Claim 9, "The method of claim 1, wherein the first and second set of values are defined by a user input" is disclosed supra for claim 1 and in col. 9, lns. 17-21.

D. Claim 10, "The method of claim 1, further comprising: defining two intermediary points; and defining a third set of attributes ... between the two intermediary points" is disclosed supra for claim 1. Wherein fig. 21 depicts more than one intermediary point (concentric circles).

E. Claim 11, "The method of claim 1, further comprising: rendering the color ... set of attributes" is disclosed supra for claim 1, as shown in fig. 21.

F. Claim 16, "The method of claim 1, wherein the first attribute is a color attribute having a value defining a distinct color for one or more ... ending point" is disclosed supra for claim 1. Wherein [With respect to the color value at that position, the succeeding color value may be calculated based on the previously-calculated color value of the intersection point 134] correspond to "having a value defining a distinct color for one or more ... ending point".

G. Claim 17, "The method of claim 16, wherein the first attribute is a rate of change attribute having a value defining a distinct rate of change of a color in the color gradient between a color associated with one of the starting point, the ending point, and the at least one intermediary point and a color associated with an adjacent point" is disclosed supra for claim 16 and in [col. 2, lns. 11-35, particularly at The gradation generating means expresses a gradation pattern whose color value is progressively changed along a straight line in a plurality of adjacent band-like regions perpendicular to the straight line connecting the start point with the end point and in which color values therein become uniform by using the gradation information, and generates gradation patterns of respective scanning lines by successively specifying portions included in each band-like region of the scanning line direction in a drawing region for drawing a gradation pattern of

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respective scanning line.] Wherein [whose color value is progressively changed along a straight line] corresponds to “having a value defining a distinct rate of change” and interior [plurality of adjacent band-like regions] as shown in fig. 21 correspond to “at least one intermediary point”.

H. Claim 18, “The method of claim 17, wherein a color is represented by a set of color components and defining a distinct value of a rate of change includes: defining a value ... with an adjacent point” is disclosed supra for claim 17 and in [col. 3, lns. 20-39; and col. 17, lns. 11-25]. Wherein “one of more color components” corresponds to [The color values are the coordinate values in the color spaces such as RGB and YMCK]; and interior [plurality of adjacent band-like regions] as shown in fig. 21 correspond to “at least one intermediary point”.

I. Claim 19, “The method of claim 16, wherein the first attribute is a constant color attribute having a value defining a distinct constant color attribute defining a portion of a color gradient for which a color component remains constant” is disclosed supra for claim 16 and in [col.6, lns. 4-7]. Wherein [a constant fixed value is used] corresponds to “for which a color component remains constant”.

J. Claim 20, “The method of claim 16, wherein the first attribute is a color traversal attribute having a ... in the color gradient” is disclosed supra for claim 16 and [col. 5, lns. 59-65]. Wherein [color changing direction] corresponds to “color traversal attribute having a ... in the color gradient”.

K. Claim 22, “The method of claim 1, wherein the first attribute is a color function attribute having a value defining a distinct mathematical function describing a color variation between two points in the color gradient” is disclosed supra for claim 1 and in col. 2, lns. 11-35; col. 5, ln. 59 – col. 6, ln. 7 and col. 9, lns. 5-20. Wherein [vector] corresponds to “mathematical function”.

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L. Claim 23, “The method of claim 22, wherein the defining a distinct mathematical function includes: defining a non-linear mathematical function” is disclosed supra for claim 22 and in col. 11, ln. 50 – col. 12, ln. 13. Wherein [square root symbol] corresponds to “non-linear function”.

M. Claim 24, “The method of claim 22, wherein the defining a distinct mathematical function includes: defining a mathematical function describing ... in the color gradient” is disclosed supra for claims 22 and 18.

N. Claim 25, “The method of claim 22, wherein the defining a distinct mathematical function includes: receiving a user input specifying the mathematical function” is disclosed supra for claim 22 and in col. 9, lns. 17-20. Wherein [may be selected] corresponds to “user input” and [delta c] corresponds in part to “mathematical function”.

O. Claim 26, “The method of claim 1, wherein the first attribute is a color contour function attribute having a value defining a distinct mathematical function describing a color contour between two points in the color gradient” is disclosed supra for claim 1 and as shown in fig. 21.

P. Claim 27, “The method of claim 26, wherein defining a distinct mathematical function includes: defining a non-linear mathematical function” is disclosed supra for claim 26 and in col. 11, ln. 50 – col. 12, ln. 13. Wherein [square root symbol] corresponds to “non-linear function”.

Q. Claim 28, “The method of claim 26, wherein the defining a distinct mathematical function includes: receiving a user input specifying the mathematical function” is disclosed supra for claim 26 and in col. 9, lns. 17-20. Wherein [may be selected] corresponds to “user input” and [delta c] corresponds in part to “mathematical function”.

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R. Claim 29, "The method of claim 1, further comprising: defining a mathematical function ... having constant color" is disclosed supra for claim 1 and in col. 8, ln. 1 – col. 9, ln. 63.

S. Per independent claim 30, this is directed to a computer program product for performing the method of independent claim 1, and therefore is rejected to independent claim 1.

T. Per dependent claims 31, 38-40, 45-49 and 51-58, these are directed to a computer program product for performing the method of dependent claims 2, 9-11, 16-20 and 22-29 and therefore are rejected to dependent claims 2, 9-11, 16-20 and 22-29.

U. Per independent claim 59, this is directed to a computer-implemented method for performing the method of claims 1 and 2, and therefore is rejected to claims 1 and 2.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 21 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto, (US Patent 6,201,550 B1) as applied to claims 20 and 49, respectively above, and further in view of Roll, (US Patent 4,096,217).

A. Claim 21, "The method of claim 20, wherein defining a distinct set of colors comprises: defining a set of colors including colors in a color wheel" is disclosed by Sakamoto supra for claim 20. However Sakamoto does not disclose "wherein defining a distinct set of colors comprises: defining a set of colors including colors in a color wheel", but Roll does in col. 2,

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Ins. 10-15, particularly at The colorimeter primarily includes a light source, a fiber optic probe, a color filter wheel, a photosensitive diode, and a digital voltmeter with a display for each of the three color readings.]

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply color traversal attributes disclosed by Sakamoto in combination with color filter wheel disclosed by Roll, and motivated to combine the teachings because [the color of a tooth may be characterized both by the red, blue and green optical density values of the gingival and incisal portions thereof and by the gradient of blending of the tooth colors between such tooth portions] as revealed by Roll in col. 11, lines 55-59. Wherein tooth corresponds to an object.

B. Per dependent claim 50, this is directed to a computer program product for performing the method of dependent claim 21, and therefore is rejected to dependent claim 21.

Allowable Subject Matter

10. Claims 3-7, 12-15, 32-36 and 41-44 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

11. Applicant's arguments with respect to claims 1-59 have been considered but are moot in view of the new ground(s) of rejection. Suzuki is no longer relied upon whereas Sakamoto

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constitutes 102 rejections as detailed supra. Prior reference Roll, (US \$,096,217) combines to form 103 rejection for amended claims 21 and 50.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Responses

13. Responses to this action should be mailed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231. If applicant desires to fax a response, (703) 872-9314 may be used for formal communications.

Please label "PROPOSED" or "DRAFT" for informal facsimile communications. Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

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Inquiries

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Greg Cunningham whose telephone number is (703) 308-6109.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella, can be reached on (703) 308-6829.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.



gfc

April 16, 2004



MATTHEW C. BELLA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600